An Energy Efficiency Workshop & Exposition

Palm Springs, California

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Financing or Appropriations: Which Is Best-Value for Implementing Federal Energy Conservation Projects?

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Session 8, Financing Track

Differences

- ESPCs: pay for interest, M&V, etc.
- But it often takes longer to put an ECM in place using appropriations
  - *Agencies wait for Congressional appropriations*
  - *Agency competitive processes to allocate funds to sites cause delays*
  - *Inefficient equipment remains in service during delays*
- Comparison requires careful analysis

Objective of Study

- Develop a representative energy conservation project
- Determine the life cycle cost of implementing with alternative processes
  - Appropriations (based on experience at a DOE site (Y-12) using IHEM program funds)
  - ESPC (based on experience with FEMP Super ESPC)

Representative Project

- Used database of 71 FEMP Super ESPC projects awarded thru FY01 to determine:
  - Ave. project investment ($3,263,000)
  - Ave. 1st year guaranteed energy & related O&M savings ($354,000 / year)
    - Assume same savings for appropriated project
  - Average performance period prices (O&M, R&R,etc.)
    - ESPC: use the average ($49,700 / year)
    - Appropriations: use average less M&V costs ($36,400 / year)

ESPC process steps

- Kickoff meeting
- Initial proposal
- Notice of intent to award (NOITA)
  - Agency reimburses DOE $30k for Project Facilitator
- Detailed energy survey / 30% design
- Final proposal
- Award
- Design completion / construction
- Acceptance – start of performance period

Modeling the ESPC process

1. Average time to DO award	15 months
2. Average design/construction period	12 months
3. Average implementation price	$3,263,000
4. Average financed amount	$2,990,000
5. Average pre-performance-period payment	$509,000
6. Average financing procurement price	$236,000
7. Average project interest rate	8.07%
8. Average delivery order term	206 months
9. Average first-year guaranteed cost savings	$354,000
10. Average escalation rate for guaranteed annual cost savings	1.87%
11. Average first-year M&V price	$13,300
12. Average escalation rate for annual M&V price	3.78%
13. Average first-year performance-period price, excluding M&V	$36,400
14. Average escalation rate for annual performance-period price, excluding M&V	3.95%
15. Average percentage of guaranteed cost savings paid to ESCO	98%
16. Average escalation rate for annual contractor payment	1.87%

Modeling the appropriations process

- Used a database of appropriations-funded projects at one DOE site (Y-12) to determine:
  - Steps required to obtain funding
  - Average delays
  - Costs associated with each step in the process per $ of project that ever got built

Appropriations process steps

- Preliminary assessment of ECM
- Develop / submit request for formal survey / feasibility study funds
- If funding received: perform survey and feasibility study (30% design completion to support next request)
- Develop / submit request for design and construction funds
- If funds received, complete design and bid package, solicit bids, select contractor, construct project
- Accept project (and begin energy savings).

Modeling the appropriations process

- Data available for Y-12 projects receiving some type of funding FY94/95
  - Cost of feasibility study
  - Date feasibility study began
  - Date feasibility study ended
  - Cost of design and construction
  - Date construction eventually began
  - Date construction ended

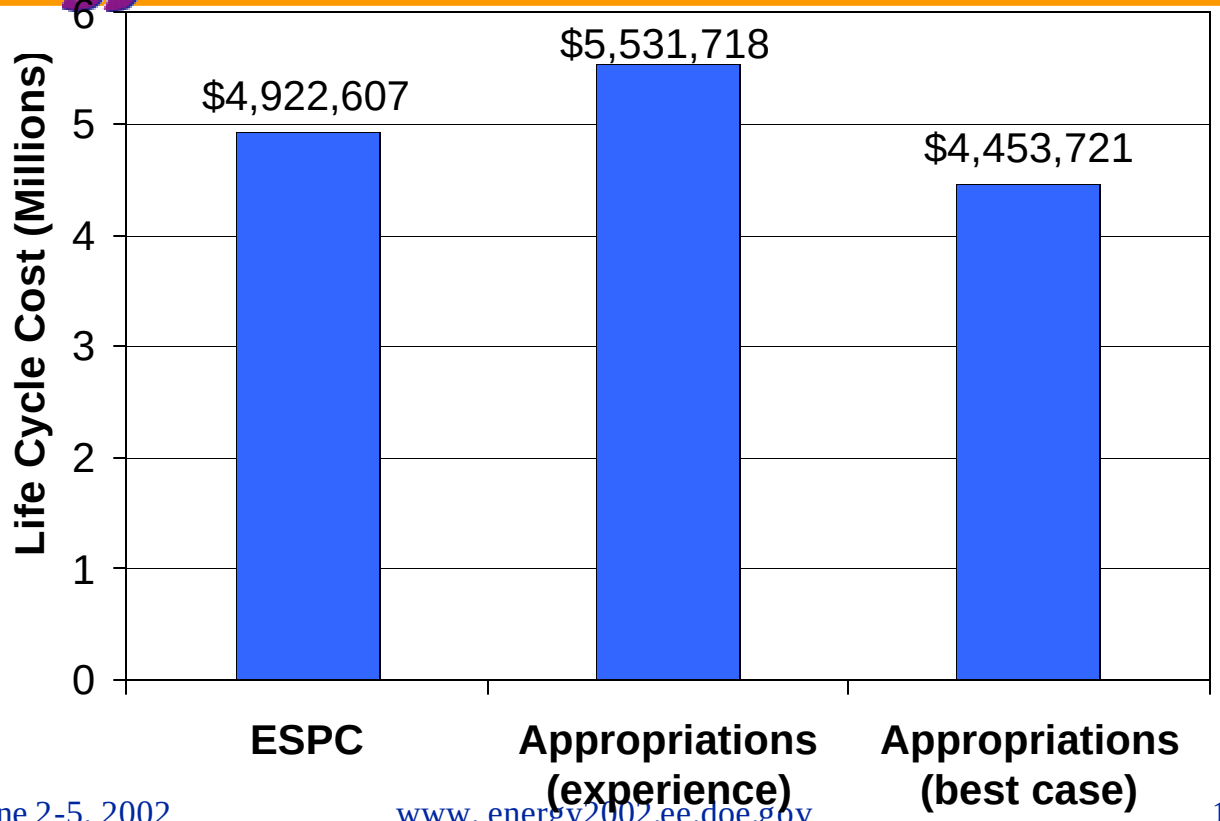
Modeling the appropriations process

- Ave. 63 months to get a project installed
- $1,251,000 received for feasibility studies (39 ECMs, $27.5 million design/construction cost)
  - $4,996,000 received to fund design/construction (12 of the 39 ECMs)
  - Cost of feasibility studies for *constructed* ECMs was $195,000 -- 4% of *their* construction costs
  - But in reality, feasibility studies cost 25% of design and construction costs

"Best case" appropriations

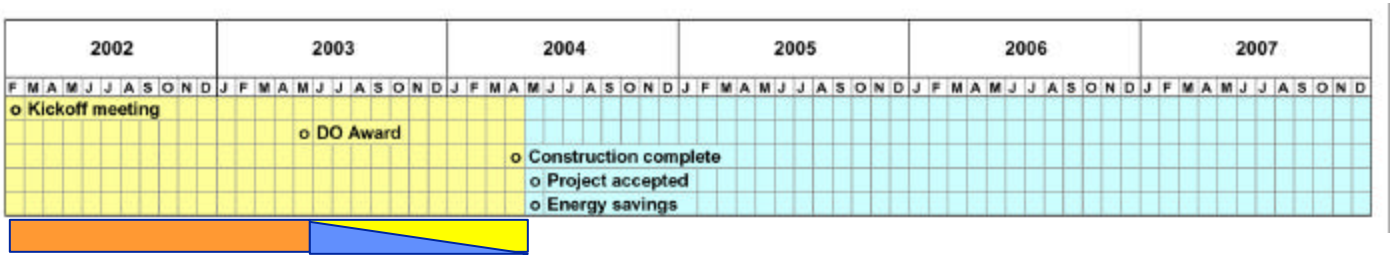
- All feasibility studies lead to built projects, so study costs are 4% of design/construction costs, not 25%
- Delay to acceptance is 27 months (same as in Super ESPC), rather than 63 months

Results of the study

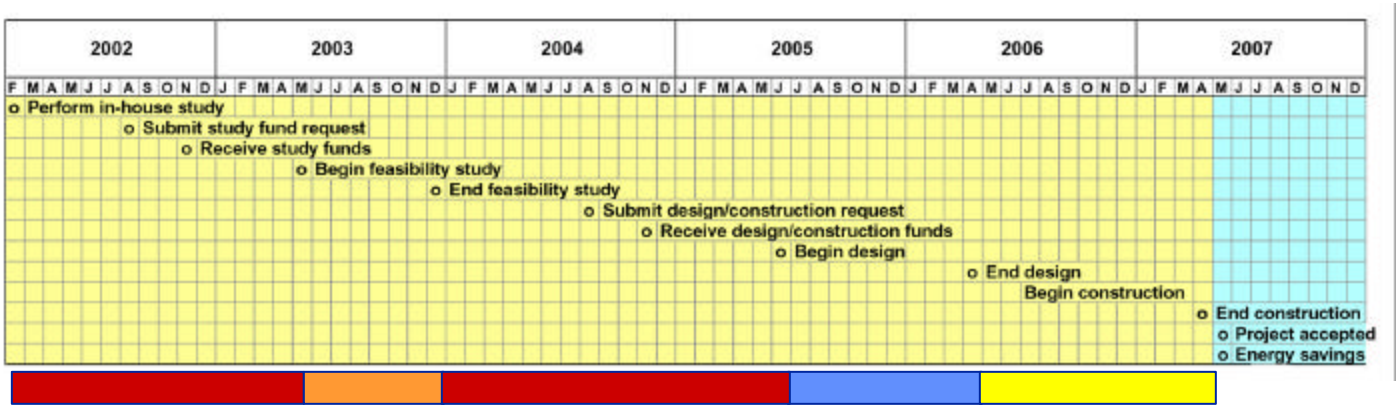


Observation – in real world ESPC is faster

Super ESPC Process*



Appropriations Process**



Process/Delays

Feasibility Study (through 30% design

100% Design

Construction

*Based on averages from the 71 projects awarded through the end of FY 2001.

**Averages based on records of 23 energy-project studies at one agency site during a two-year period that led to requests for $27.5 million in design/construction funding and ultimately $5 million in built projects.

Additional observations

- Appropriations delays keep inefficient equipment in service longer
- PV of energy / energy related O&M during this delay ($1.664 million) is about equal to the interest costs in ESPC case ($1.644 million)
- ESPC M&V costs are 3.5% of PV of LCC
- ESPC project facilitator costs are 0.6% of PV of LCC

Conclusions

- Appropriations are best value if:
  - Congress appropriates without delay
  - Agency HQs disburse funds to field without delay
  - Sites are clairvoyant: all studies lead to built projects
- However, appropriations experience shows:
  - Congress has higher priorities than energy projects
  - Agency HQ processes to allocate funds to sites cause delays
  - High overheads (not all studies lead to built projects)
- Experience ? ESPC LCC less than appropriations

Parting thoughts

- Obviously this study is not definitive
  - Does Super ESPC represent all ESPC?
  - Does the DOE experience at Y-12 represent all appropriations?
- However, no definitive study was found concluding appropriations LCC < ESPC either
- Questions:
  - Were the “good old days” really that good?
  - Have we been victims of selective memory?

Next Steps

- See the full study at:
  - http://www.ornl.gov/femp/pdfs/LCC-ESPCvsAppropriations-DRAFT.pdf
- Forward all comments to:
  - John Shonder
  - 865-574-2015
  - shonderja@ornl.gov
- FEMP is expanding the study
  - If you have organized (any?) records of past appropriated projects please let John know

FEMP contacts

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